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(54) **OPTICAL TOMOGRAPHY OBSERVATION APPARATUS**

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See application file for complete search history.

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(57) **ABSTRACT**

An optical measurement apparatus has a light source that emits a laser beam that is branched into signal light and reference light. An objective lens condenses the signal light on a measurement target to cause the measurement target to be irradiated; and a condensing position of the signal light is scanned in an optical axis direction. An interference optical system combines the signal light reflected or scattered from the measurement target with the reference light, and generates a plurality of interfering light beams having phase relationships different from one another that are detected by photodetectors. The detection signals are output as electrical signals; and a signal processing unit performs a predetermined arithmetic operation on the plurality of detection signals. The signal processing unit subtracts reflection light components from a predetermined portion of the measurement target from the plurality of detection signals or signals generated using the detection signals.

18 Claims, 10 Drawing Sheets